FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 21 to February 27, 2016 (Week 8)

Overall Summary

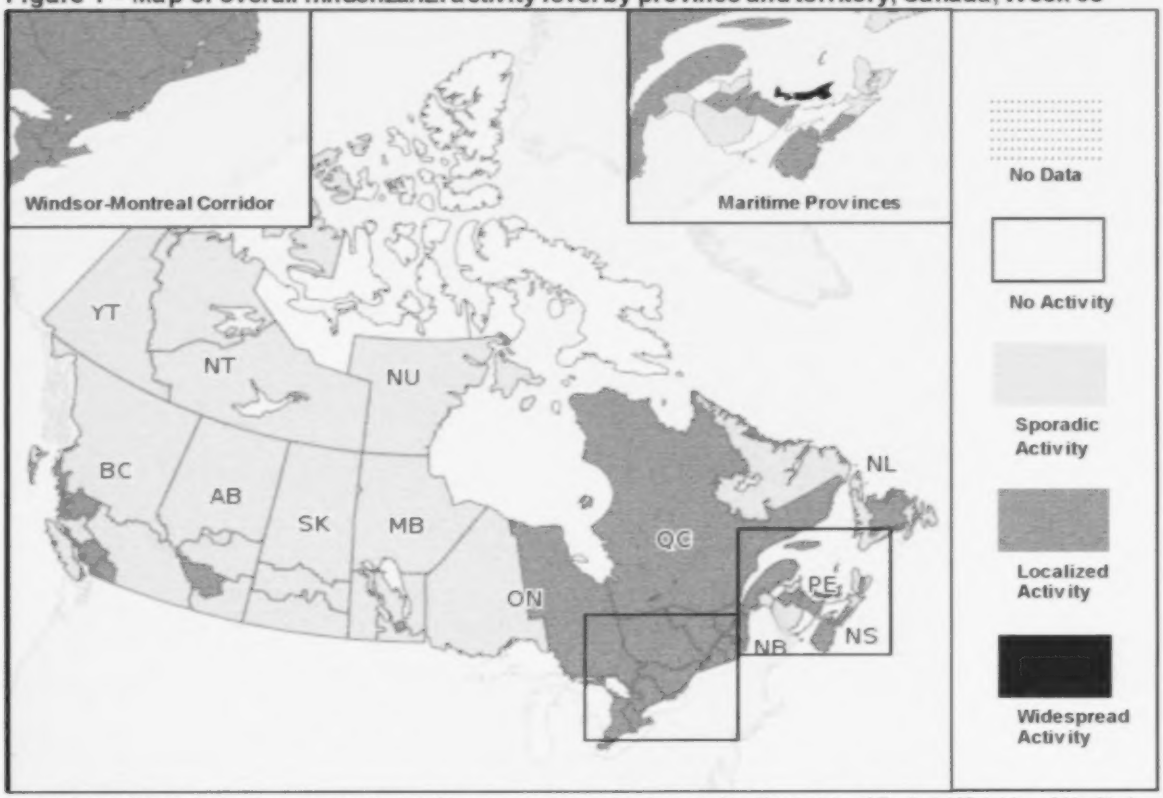
- Overall in week 08, influenza activity continued to increase; the Eastern provinces of Canada accounted for the majority of influenza laboratory confirmations.
- In week 08, adults 65+ years of age accounted for the largest proportion of hospitalizations
- The number of outbreaks reported in week 08 increased sharply from the previous week with the majority of outbreaks reported in long-term care facilities.
- Influenza A(H1N1) remains the most common influenza subtype circulating in Canada.
- For more information on the flu, see our Flu(influenza) web page.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2015-16 influenza season? Contact us at FluWatch@phac-aspc.gc.ca

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 08, a larger proportion of regions reported elevated activity levels in the Eastern regions of Canada. A total of 20 regions across Canada reported sporadic influenza/ILI activity. Localized activity was reported in 20 regions in Canada and widespread activity was reported in one region of PE.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 08

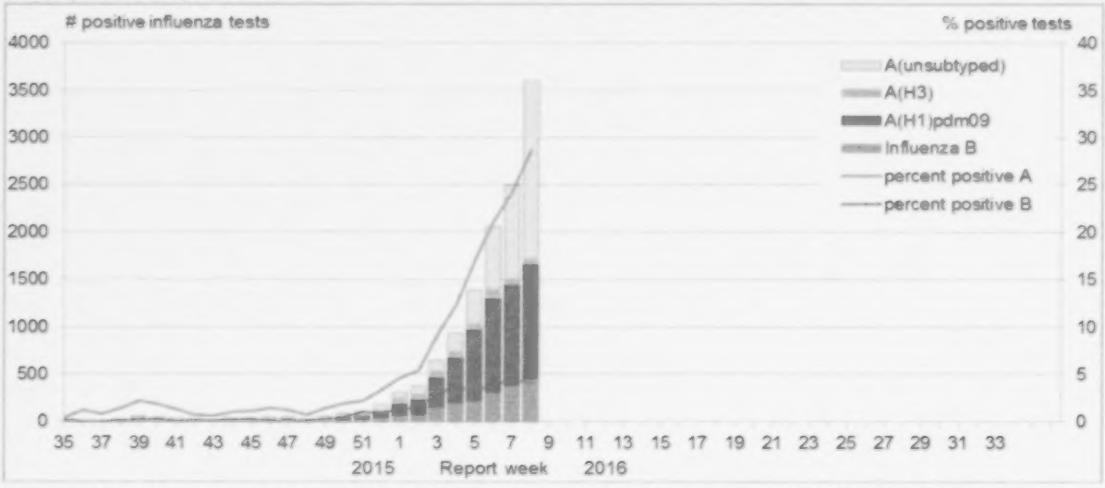


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

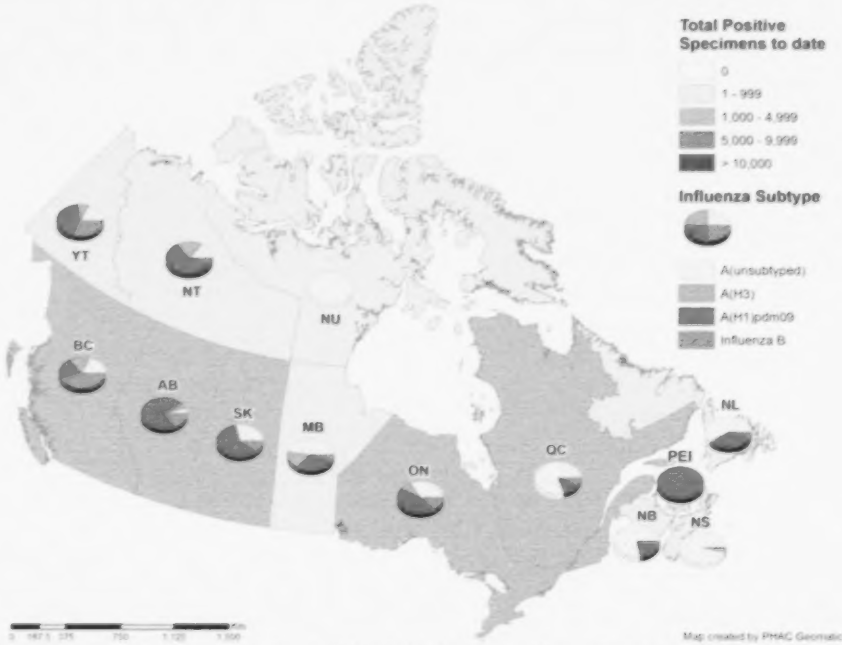
Laboratory confirmed influenza detections continued to increase. The percent positive for influenza increased from 29% in week 07 to 33% in week 08 (Figure 2). Compared to the previous five seasons, the percent positive (33%) reported in week 08 was above the five year average for that week and exceeded the expected levels (range 13.0%-17.4%). With the late start to the 2015-16 influenza season, these above normal levels are not unexpected and are typical of peak season levels.

Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2015-16



In week 08, there were 3,411 positive influenza tests reported. Influenza A(H1N1) continues to be the most common subtype detected. Increased detections of influenza in the central and eastern provinces have been noted in the last few weeks. In week 08, the majority of influenza detections were reported in the provinces of ON and QC (69%). To date, 87% of influenza detections have been influenza A and among those subtyped, the majority have been influenza A(H1N1) [85% (5272/6204)].

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province, Canada, 2015-16



Note: Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data include updates to previous weeks.

To date this season, detailed information on age and type/subtype has been received for 10,686 cases. Adults aged 20-44 years accounted for the greatest proportion of influenza cases (Table 1). In week 8, children (aged 0-19 years) accounted for 41% of A(H1N1). Additionally, children aged 0-19 years accounted for 42% of influenza B confirmed cases to date this this season.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2015-16

Age groups (years)	Weekly (Feb. 21, 2016 to Feb. 27, 2016)					Cumulative (August 30, 2015 to February 27, 2016)						
	Influenza A				B	Influenza A				B	Total Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
<5	379	112	0	267	47	1650	932	45	673	215	1865	17.5%
5-19	264	124	0	140	78	1026	587	69	370	492	1518	14.2%
20-44	499	161	<5	x	59	2497	1505	107	885	484	2981	27.9%
45-64	450	129	<5	x	36	2266	1254	146	866	237	2503	23.4%
65+	338	50	9	279	38	1577	605	288	684	242	1819	17.0%
Total	1930	576	14	1,340	258	9016	4883	655	3478	1670	10686	100.0%
Percentage[2]	88.2%	29.8%	0.7%	69.4%	11.8%	84.4%	54.2%	7.3%	38.6%	15.6%		

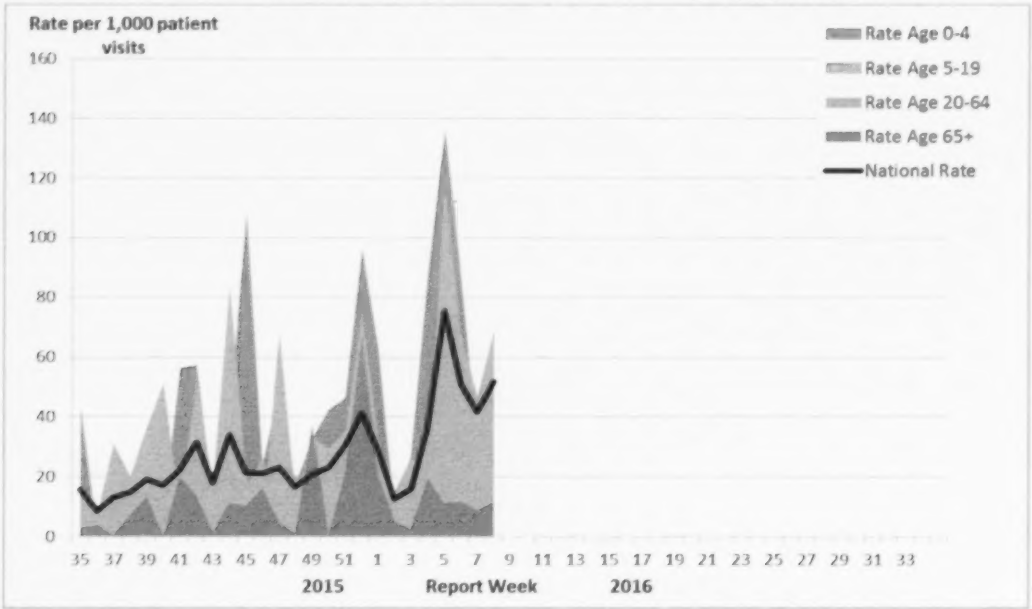
[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
[4]x - Suppressed to prevent residual disclosure

For data on other respiratory virus detections see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada website.

Influenza-like Illness Consultation Rate

The national ILI consultation rate increased from the previous week from 41.6 per 1,000 patient visits in week 07, to 51.7 per 1,000 patient visits in week 08. In week 08, the highest ILI consultation rate was found in children 5-19 years of age (69.0 per 1,000) and the lowest was found in the ≥65 years age group (11.4 per 1,000) (Figure 4).

Figure 4 – Influenza-like illness (ILI) consultation rates by age group and week, Canada, 2015-16

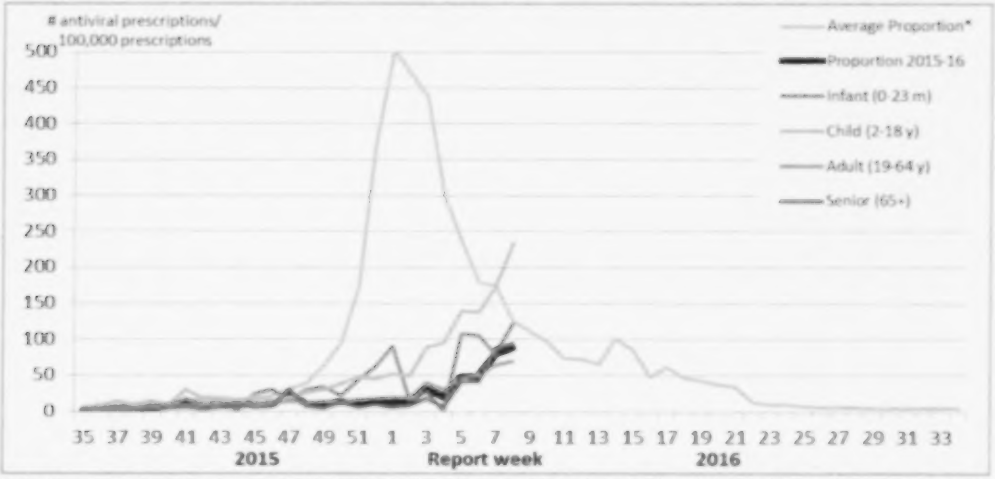


Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

Pharmacy Surveillance

During week 08, the proportion of prescriptions for antivirals increased to 88.4 antiviral prescriptions per 100,000 total prescriptions, which is lower than the five year historical average. The proportions were highest in children aged 2-18 years (233.4 per 100,000 total prescriptions).

Figure 5 – Proportion of prescription sales for influenza antivirals by age group and week, Canada, 2015-16



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu [Oseltamivir] and Relenza [Zanamivir]) and the total number of new prescriptions dispensed by Province/Territory and age group.

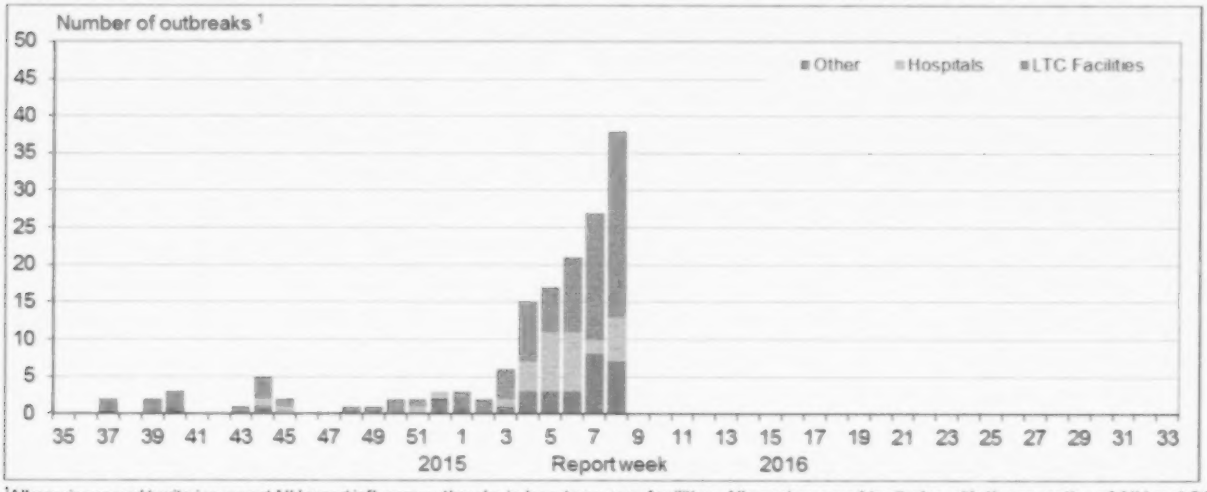
*The average weekly proportion includes data from April 2011 to March 2015.

Influenza Outbreak Surveillance

In week 08, 38 new laboratory confirmed influenza outbreaks were reported: 25 in long-term care facilities (LTCF), seven in institutions or community settings and six in hospitals. Of the outbreaks with known strains or subtypes, one outbreak was due to Influenza A(H3N2) and three outbreaks were due to influenza B. Additionally, five ILI outbreaks were reported in schools.

To date this season, 176 outbreaks have been reported. At week 08 in the 2014-15 season, 1,398 outbreaks were reported and in the 2013-14 season, 134 outbreaks were reported.

Figure 6 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2015-2016



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 08, 121 hospitalizations were reported by the the Immunization Monitoring Program Active (IMPACT) network (Figure 7). Thirty-five hospitalizations were due to influenza A(H1N1) (29.0%), 18 were due to influenza B (15%) and the remainder were influenza A (UnS).

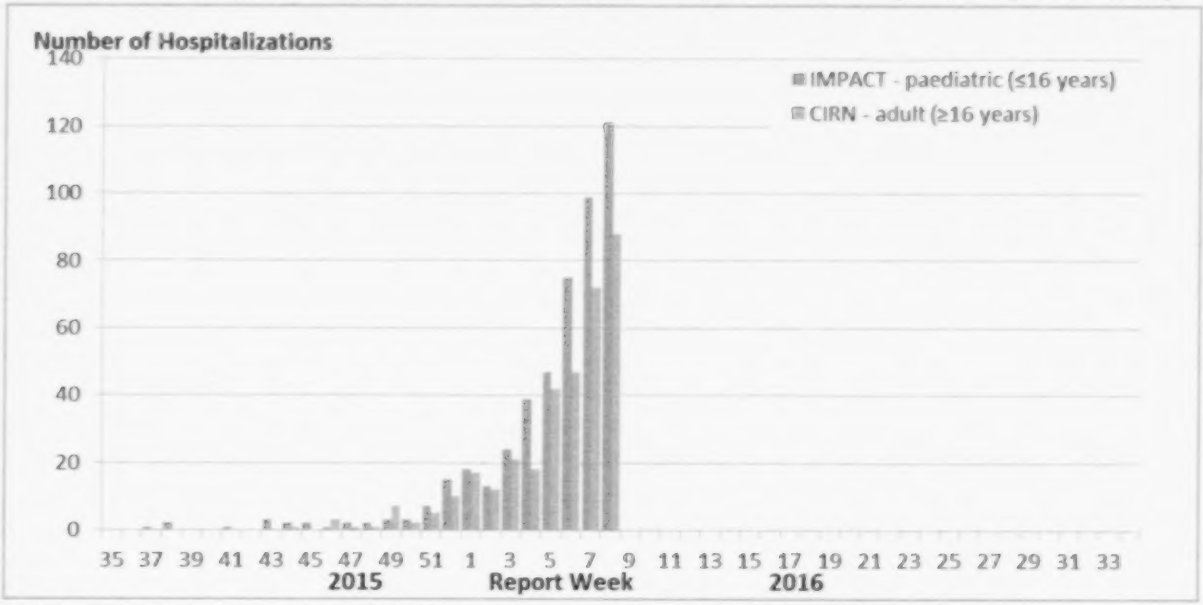
To date this season, 480 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations have been reported by the IMPACT network: 390 hospitalized cases were due to influenza A and 90 cases were due to influenza B. The largest proportion of hospitalized cases were among children under the age of 2 years (37%). To date, 73 intensive care unit (ICU) admissions have been reported. ICU admissions were approximately equally distributed across ages with slightly smaller proportions of children 10-16 years admitted. Less than five influenza-associated deaths have been reported.

Table 2 – Cumulative numbers of peadiatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, Canada, 2015-16

Age Groups	Cumulative (30 August 2015 to 27 February 2016)					
	Influenza A				Influenza B	Influenza A and B (#(%))
	A Total	A(H1) pdm09	A(H3)	A (UnS)	B Total	
0-5m	42	13	<5	x	7	49 (10%)
6-23m	113	47	7	59	18	131 (27%)
2-4y	117	50	<5	x	25	142 (30%)
5-9y	85	29	<5	x	26	111 (23%)
10-16y	85	29	<5	x	26	47 (10%)
Total	390	153	18	219	90	480 (100%)

[1]x - Suppressed to prevent residual disclosure

Figure 7 – Number of hospitalized cases of influenza reported by sentinel hospital networks, by week, Canada, 2015-16, paediatric and adult hospitalizations (≤16 years of age, IMPACT; ≥16 years of age, CIRN-SOS)



*Not included in Table 2 and Figure 6 are two IMPACT cases that were due to co-infections of influenza A and B.

Adult Influenza Hospitalizations and Deaths

In week 08, 88 hospitalizations were reported by the Canadian Immunization Research Network Serious Outcome Surveillance (CIRN-SOS). The largest proportion of hospitalizations were in adults 65+ years of age (45%) and due to influenza A (88%).

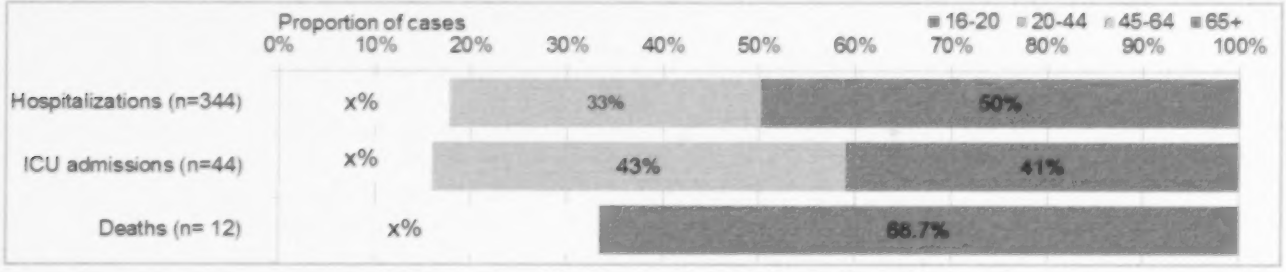
To date this season, 347 laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations have been reported by CIRN-SOS (Table 3). The majority of hospitalized cases were due to influenza A (86%) and the largest reported proption were among adults ≥65 years of age (50%). Forty-four intensive care unit (ICU) admissions have been reported and among those, 40 (91%) were due to influenza A. Twelve deaths have been reported this season.

Table 3 – Cumulative numbers of adult hospitalizations (≥16 years of age) with influenza reported by the CIRN-SOS, Canada, 2015-16

Age groups (years)	Cumulative (1 Nov. 2015 to 27 Feb. 2016)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)	Total	# (%)
16-20	<5	<5	x	<5	x	3 (1%)
20-44	43	14	0	29	15	58 (17%)
45-64	103	25	<5	x	9	112 (32%)
65+	149	24	16	109	22	171 (49%)
Unknown	<5	x	x	<5	<5	3 (1%)
Total	300	65	18	217	47	347
%	86%	22%	6%	72%	14%	100%

[1]x - Suppressed to prevent residual disclosure

Figure 8 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group (≥16 year of age), CIRN-SOS, Canada 2015-16



Note: The number of hospitalizations reported through CIRN-SOS and IMPACT represents a subset of all influenza-associated adult and paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

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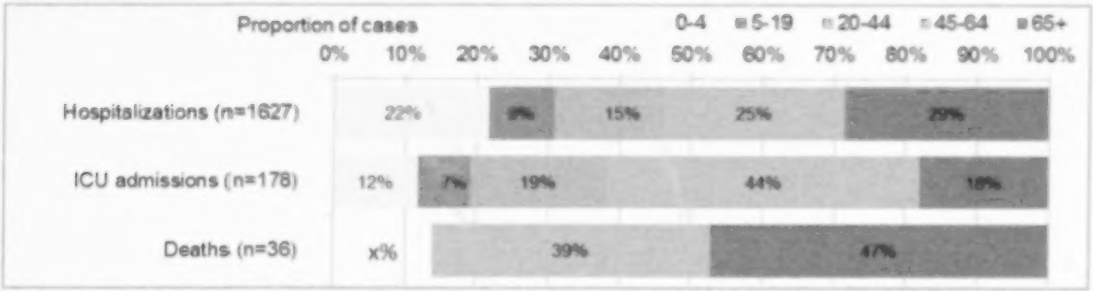
Provincial/Territorial Influenza Hospitalizations and Deaths

In week 08, 276 hospitalizations have been reported from participating provinces and territories*. The majority of hospitalizations were due to influenza A (88%). The largest proportion of cases reported in week 08 were in adults 65+ years of age (29%) followed by adults 45-64 years (18%)

Since the start of the 2015-16 season, 1,632 laboratory-confirmed influenza-associated hospitalizations have been reported. A total of 1,451 hospitalizations (89%) were due to influenza A and 181 (11%) were due to influenza B. Among cases for which the subtype of influenza A was reported, 91% (834/921) were influenza A(H1N1). The largest proportion (28%) of hospitalized cases were ≥65 years of age. One hundred seventy-eight ICU admissions have been reported of which 161 (90%) were due to influenza A and 78 (44%) were in the 45-64 age group. A total of 36 deaths have been reported, all due to influenza A. The largest proportion of deaths were reported in adults 65+ years of age,representing 47% of deaths.

Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada 2015-16



* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. Data may also include cases reported by the IMPACT and CIRN-SOS networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from ON that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

x - Suppressed to prevent residual disclosure

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2011-12 to 2015-16 on the Public Health Agency of Canada website.

Influenza Strain Characterizations

During the 2015-16 influenza season, the National Microbiology Laboratory (NML) has characterized 588 influenza viruses [129 A(H3N2), 307 A(H1N1) and 152 influenza B].

Influenza A (H3N2): When tested by hemagglutination inhibition (HI) assays, 28 H3N2 virus were antigenically characterized as A/Switzerland/9715293/2013-like using antiserum raised against cell-propagated A/Switzerland/9715293/2013.

Sequence analysis was done on 101 H3N2 viruses. All viruses belonged to a genetic group for which most viruses were antigenically related to A/Switzerland/9715293/2013. A/Switzerland/9715293/2013 is the A(H3N2) component of the 2015-16 Northern Hemisphere's vaccine.

Influenza A (H1N1): A total of 307 H1N1 viruses characterized were antigenically similar to A/California/7/2009, the A(H1N1) component of the 2015-16 influenza vaccine.

Influenza B: A total of 53 influenza B viruses characterized were antigenically similar to the vaccine strain B/Phuket/3073/2013. Ninety-nine influenza B viruses were characterized as B/Brisbane/60/2008-like, one of the influenza B components of the 2015-16 Northern Hemisphere quadrivalent influenza vaccine.

The WHO has released the recommended composition of the northern hemisphere influenza vaccine for the 2016-2017 season. Trivalent vaccines are recommended to contain 1) an A/California/7/2009 (H1N1)pdm09-like virus 2) an A/HongKong/4801/2014 (H3N2)-like virus, and 3) a B/Brisbane/60/2008-like virus (Victoria lineage). Quadrivalent vaccines are recommended to additionally contain a B/Phuket/30732013-like virus (Yamagata lineage).

The recommended components for the 2015-2016 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A/Switzerland/9715293/2013(H3N2)-like virus, and a B/Phuket/3073/2013 -like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus (Victoria lineage) is recommended.
The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition testing compared to the reference influenza strains recommended by WHO.

Antiviral Resistance

During the 2015-16 season, the National Microbiology Laboratory (NML) has tested 500 influenza viruses for resistance to oseltamivir, 547 for resistance to zanamivir and 418 for resistance to amantadine. All but one virus tested for resistance were sensitive to oseltamivir. All viruses tested for restistance were sensitive to zanamavir. A total of 417 influenza A viruses (99%) were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2015-16

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	120	0	123	0	131	130 (99.2%)
A (H1N1)	253	1	283	0	287	287 (100%)
B	126	0	141	0	NA[1]	NA[1]
TOTAL	500	1	547	0	418	417

[1]NA: Not Applicable

International Influenza Reports

World Health Organization influenza update
World Health Organization FluNet
WHO Influenza at the human-animal interface
Centers for Disease Control and Prevention seasonal influenza report
European Centre for Disease Prevention and Control - epidemiological data
South Africa Influenza surveillance report
New Zealand Public Health Surveillance
Australia Influenza Report
Pan-American Health Organization Influenza Situation Report

FluWatch Definitions for the 2015-2016 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage under Weekly influenza reports.

Ce rapport est disponible dans les deux langues officielles.